



## Wang, Chi-Young

Professor

*Research Field: Veterinary Virology · Veterinary Immunology and Avian Diseases*

*Teaching Duty: Veterinary Virology, Veterinary Immunology, Avian Diseases, Molecular Virology and Molecular Immunology*

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### *Educational and Professional Background*

*Professor, National Chung Hsing University*

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### *Research Interests*

Recent studies are motivated by performing the clinical diagnosis of animal viral diseases. We applied a comprehensive strategy including molecular virology, immunology, electron microscopy, and laboratory animals to study infectious bronchitis virus (IBV) and beak and feather disease virus (BFDV). Specific topics include (1) Characterization of IBV viroporin and evaluation of the anti-viral activity of lactoferrin as the feed additive using animal trials; (2) The functional and 3D structural modeling of viral proteins and evaluation of the anti-viral activity of cytokines; (3) Development of the viral-like particles encapsulating biomolecules as the nano-vehicles; (4) Development of gene therapy based on the recombinant viruses carrying the specific viral protein. The ultimate goal is to improve diagnosis techniques, therapeutic approaches, and improve our understanding of viral diseases.

### *Academic services*

*Viruses (SCI, IF=4.7) (Topic advisory panel: 2022 Oct-Now)*

### *Selected publications*

1. Tsai, S. M., Liu, H. J., Shien, J. H., Lee, L. H., Chang, P. C., Wang, C. Y.\*, 2012. Rapid and sensitive detection of infectious bursal disease virus by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods* 181:117-124.
2. Ho, C. F., Chan, K. W., Yang, W. C., Chaing, Y. C., Chung, Y. T., Kuo, J., Wang, C. Y.\*, 2013. Development of a multiplex amplification refractory mutation system reverse transcription polymerase chain reaction assay for the differential diagnosis of *Feline leukemia virus* vaccine and wild strains. *Journal of Veterinary Diagnostic Investigation* 26(4):496-506.

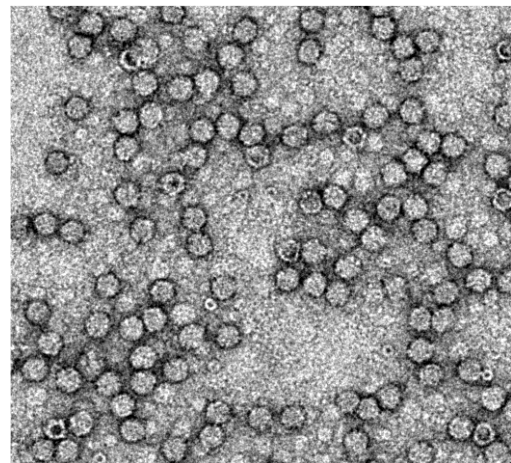
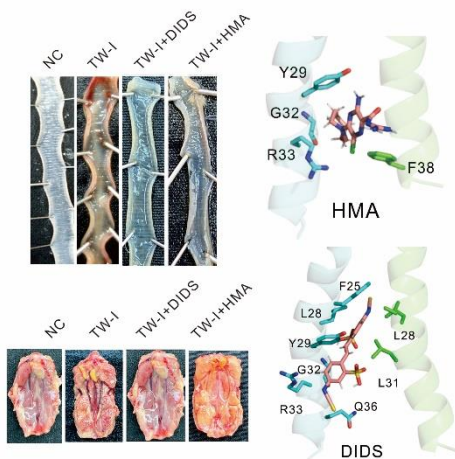
3. Huang, S. W., Ho, C. F., Chan, K. W., Cheng, M. C., Shien, J. H., Liu, H. J., Wang, C. Y.\*, 2014. The genotyping of Infectious bronchitis virus in Taiwan by a multiplex amplification refractory system reverse transcription polymerase chain reaction. *Journal of Veterinary Diagnostic Investigation* 26(6):721-733.
4. Lin, F. Y., Tseng, Y. Y., Chan, K. W., Kuo, S. T., Yang, C. H., Wang, C. Y., Takasu, M., Hsu, W. L., Wong, M. L., 2015. Suppression of influenza virus infection by the orf virus isolated in Taiwan. *Journal of Veterinary Medical Sciences* 77(9):1055-1062.
5. Huang, S. W., Liu, H. P., Chen, J. K., Shien, Y. W., Wong, M. L., Wang, C. Y.\*, 2016. Dual ATPase and GTPase activity of the replication-associated protein (Rep) of beak and feather disease virus. *Virus Research* 231: 149-161. (Impact factor: 6.286)
6. Huang, S. W., Chiang, Y. C., Chin, C. Y., Tang, P. C., Wang, C. Y.\*, 2016. The phylogenetic and recombinational analysis of beak and feather disease virus Taiwan isolates. *Archive of Virology* 161: 2969-2988.
7. Ho, C. F., Huang, S. W., Chan, K. W., Wu, J. S., Chang, S. P., Wang, C. Y.\*, 2018. Development of an antigen-capture ELISA for beak and feather disease virus. *Archive of Virology* 163: 145-151.
8. Chen, J. K., Hsiao, C., Wu, J. S., Lin, S. Y., Wang, C. Y.\*, 2019. Characterization of the endonuclease activity of the replication-associated protein of beak and feather disease virus. *Archive of Virology* 164: 20912106.
9. Chen, Y.Y., Yang, W.C., Chang, Y.K., Wang, C.Y., Huang, W.R., Li, J.Y., Chuang, K.P., Wu, H.Y., Tong, D.W., Liu, H.J., 2020. Construction of polycistronic baculovirus surface display vectors to express the PCV2 Cap (d41) protein and analysis of its immunogenicity in mice and swine. *Veterinary Research* 51: 112.
10. Chen, J. K., Hsiao, C., Lo, A. R., Wang, C. Y.\*, 2020. Characterization of the nuclear localization sequence of beak and feather disease virus capsid proteins and their assembly into virus-like particles. *Virus Research* 289: 198144. (Impact factor: 5) Reshi, L., Wang, C. Y., 2020. Andrographolide as a potent and promising antiviral agent. *Chineses Journal of Natural Medicine* 18: 760-769. (Impact factor: 4.6)

11. Huang, W. R., Li, J. Y., Liao, T. L., Yeh, C. M., Wang, C. Y., Wen, H. W., Hu, N. J., Wu, Y. Y., Hsu, C. Y., Chang, Y. K., Chang, C. D., Nielsen, B. L., Liu, H. J., 2022. Molecular chaperon TRiC governs avian reovirus replication by protecting outer-capsid protein  $\sigma$ C and inner core protein  $\sigma$ A and non-structural  $\sigma$ NS from ubiquitin-proteasome degradation. *Veterinary Microbiology* 264: 109277.
12. Liu, F. L., Chang, S. P., Liu, H. J., Liu, P. C., Wang, C. Y.\*, 2022. Genomic and phylogenetic analysis of avian polyomaviruses isolated from parrots in Taiwan. *Virus Research* 308: 198634. (Impact factor: **5**)
13. Chen, R. K., Hsiao, C., Yang, P. Y., Periyasamy, T., Wang, C. Y.\*, 2022. Characterization of *Agapornis fischeri* interferon gamma and its activity against beak and feather disease virus. *Virus Research* 308: 198634. (Impact factor: **5**)
14. Hsu, C. Y., Chen, Y. H., Huang, W. R., Huang, J. W., Chen, I. C., Chang, Y. K., Wang, C. Y., Chang, C. D., Liao, T. L., Nielsen, B. L., Liu, H. J., 2022. Oncolytic avian reovirus  $\sigma$ A-modulated fatty acid metabolism through the PSMB6/Akt/SREBP1/acetyl-CoA carboxylase pathway to increase energy production for virus replication. *Veterinary Microbiology* 273: 109545.
15. Wang, C. W., Chen, Y. L., Mao, S. J. T., Lin, T. C., Wu, C. W., Thongchan, D., Wang, C. Y.\*, Wu, H. Y., 2022. Pathogenicity of Avian Polyomaviruses and Prospect of Vaccine Development. *Viruses* 14: 2079. (Impact factor: **4.7**)
16. Sitinjak, M. C., Chen, J. K., Lee, M. Y., Liu, H. J., Wang, C. Y.\*, 2023. Characterization of a novel reporter system for beak and feather disease virus. *Gene* 867: 147371. (Impact factor: **3.913**)
17. Sitinjak, M. C., Chen, J. K., Wang, C. Y.\*, 2023. Characterization of novel cell-penetrating peptides derived from the capsid protein of beak and feather disease virus. *Virus Research* 330: 199109. (Impact factor: **5**)
18. Hsu, C. Y., Jang, Y., Huang, J. W., Huang, W. R., Wang, C. Y., Wen, H. W., Tsai, P. C., Yang, C. Y., Munir, M., Liu, H. J., 2023. Development of polycistronic baculovirus surface display vectors to simultaneously express viral proteins of porcine reproductive and respiratory syndrome and analysis of their immunogenicity in mouse and swine. *Vaccines* 11:1666. (Impact factor: **7.8**)

19. Chang, Y. K., Lin, Y. J., Cheng, C. Y., Tsai, P. C., Wang, C. Y., Nielsen, B. L., Liu, H. J., 2024. Nucleocytoplasmic shuttling of BEFV M protein-modulated by lamin A/C and chromosome maintenance region 1 through a transcription-, carrier- and energy-dependent pathway. *Veterinary Microbiology* 291: 110026 (Impact factor: **2.4**)
20. Sitinjak, M. C., Chen, J. K., Liu, F. L., Hou, M. H., Lin, S. M., Liu, H. J., Wang, C. Y.\*, 2024. Antiviral effect of the viroporin inhibitors against Taiwan isolates of infectious bronchitis virus (IBV). *Virus Research* 349: 199458 (Impact factor: **2.5**).
21. Wang, C. Y.\*, 2025. Recent advances of avian viruses research. *Viruses* 17: 99 (Impact factor: **3.8**).

**Book**

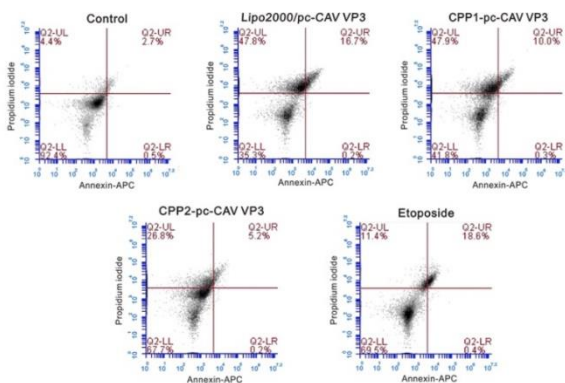
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*Anti-IBV effects of drugs and their docking models with the viral protein*

*Recombinant viruses expressing the exogenous gene for gene therapy*

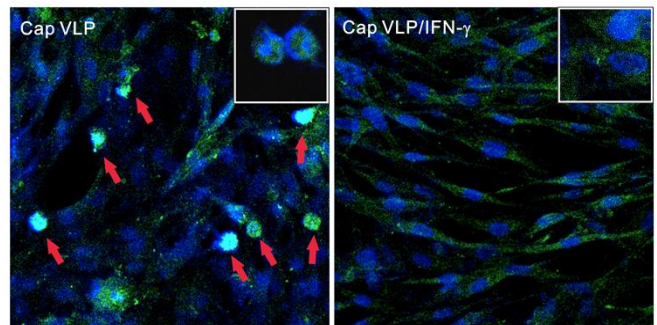
(Published on *Virus Research* 349: 199458)



*The apoptosis of cells by viral proteins using flow cytometry*

(Published on *Virus Research* 330: 199109)

Updated on 2/10/2025



*The blockage of the nuclear entry of VLPs by interferon- $\gamma$*

(Published on *Virus Research* 308:198634)